

**Department of Agriculture, Trade and Consumer Protection
Division of Marketing
Agricultural Development & Diversification Program (ADD)**

**Year 2
2000 Grant Project Final Report
Contract Number: 14014**

Grant Project Title: **Atlantic Salmon Culture in Wisconsin (Year 2)**
Project Beginning Date: **September 1, 1999**
Project End Date: **September 1, 2000**
Amount of Funding Awarded: **\$ 9,345.00**

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Grant Project Final Report
Sept. 1, 1999 through Aug. 31, 2000

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Contractor/ Grantee: Chuck and Jenny Anderson,
Final Report by: Artesian Trout Farm
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1.) Describe the original intent of the grant project.

The grant project is specifically targeted at growth production and marketing of domesticated triploid Atlantic Salmon, compiling this data and making it available for new and existing ventures. During year two the focus has been on grow-out and marketing of the Atlantic Salmon. This information will be used to determine if it is cost effective for existing facilities to invest in production of Atlantic Salmon.

How was it projected to benefit Wisconsin Agriculture?

We anticipated, through the project efforts, that successfully raising Atlantic Salmon will prove this species suitable for other aquaculture facilities and new capital ventures. Many of the states Wisconsin fish farms are limited by their use of natural resources. Because of higher retail prices for Atlantic Salmon, farmers will see higher profit margins using the same amount of natural resources. Furthermore, will a shift in production increase the demand for Wisconsin grown Rainbow Trout? In some outlets trout farmers have met demand for Wisconsin grown Rainbow Trout, due to large production facilities in other states, Wisconsin farmers are forced into lower prices regardless of quality. Wisconsin consumers are well known for their dedication to buying quality locally grown products. Expanding products may give farmers new niches in the market. Additionally, large ventures are difficult to fund, research and development are needed for investors to commit to big investments.

Was it necessary to adjust the objectives during the project?

All of the objectives were met during the projects first year. However, During year two we anticipated to market more fish to seafood outlets, this could not be accomplished due to the slower than projected growth. What was more important than marketing is that the flavor of the Atlantic Salmon have a delicate, rich flavor. Through taste testing, without a doubt, we concluded that the flavor and texture is that of an Atlantic Salmon, very delicate but rich.

2.) Describe the work conducted in this project.

During the early months of the project we prepared the hatchery and tanks for delivery of Atlantic Salmon eggs. We spent quite some time obtaining an importation permit through the Department of Natural Resources. This allows us to import an exotic non-native species into the state. We also visited some of the state hatcheries, particularly the Westfield State Hatchery. We observed them prepare and hatch Coho Salmon at different stages, the employees were very helpful to this project.

On Dec. 3, 1998 we received 25,000 Triploid Atlantic Salmon, all female eggs. Hatch went well, few eggs were lost. During the middle of January the yoc sack was completely consumed and we released the aelvins into the tanks. Although the salmon seem strong and healthy they stayed on the floor of the tanks. Feed was distributed 5 times a day with automatic feeders for back up. After endless efforts the salmon began to respond to feed much better. Ninety percent of the mortality was experienced during the first month after the fry were released into the tanks. They seem to respond better in low lighting. Also, they become distressed when approached or disturbed. Dusk seems to be a peak feeding time throughout the entire project. As of August 1998 total mortality was twenty percent, four inch mean length. The total 20,000 were placed in a large grow-out earthen pond (200X40X8), 200gpm at approximately 55 degrees.

During the second phase of the project grow-out and marketing was the focus. A fish health assessment was performed in October of 1999 by the State Aquaculture Veterinarian (Dr. Myron Kebus) along with private practice veterinarians. The findings concluded the salmon appeared to be relatively healthy compared to other Rainbow Trout raised in Wisconsin (using the "Health Assessment Index: A Rapid, Simple, Inexpensive Farm-Side Technique for Assessing Production and health Status of Wisconsin Aquaculture Species"). Additionally it concluded that at 10 months of age the growth of these fish is equal to better than the majority of Rainbow Trout raised in Wisconsin. The fish averaged 143 mm length and 27 grams in weight. The organs showed no signs of abnormalities, body fat was slight to moderately abundant.

At the conclusion of the project total mean length is 11 inches, 2.4 fish per pound, again equal to or better than the majority of rainbow trout raised in Wisconsin (using the "Health Assessment Index").

How did the grant funds assist you in this project?

High cost of eggs, feed and shifting trout production is risky for a small production facility. Through the funding, we were able to off-set a great deal of the expense for this project. Also, professionally this gave our business incentive for us to become more involved in the industry.

What successes did you achieve with this grant project?

We proved we can hatch out 25,000 Atlantic Salmon, continue through early feeding stages and release them into a grow-out facility within year one. Then, during year two, achieved a length of 11 inches with little or no mortalities. Two final achievements were, the successful taste tests and the interest by owners of fee fishing operations as well as private pond owners.

What challenges did you face with your grant project?

The legal importation permit by far was our largest challenge, this process should become much easier with additional applicants. We tried to obtain the permit during a reorganization of two very large agencies, we somewhat anticipated this challenge from the start. Secondly, endless efforts to entice the young fry to feed which became very time consuming. In future hatches we will be able to surpass many of the unsuccessful efforts of trial and error.

3.) Describe the public outreach efforts of this project.

What literature or educational materials were produced through this project?

We have constructed a web page to add to our current site that will include information on hatching, rearing and marketing Atlantic Salmon. We will have links to the Agriculture Department and other important sites.

What presentations, field days or other events were given related to this project?

We have given many individuals tours of the farm because of their interest in this project. We have received many phone calls and e-mails answering questions about Atlantic Salmon Culture in Wisconsin. Also, an important activity at our facility during October was the hands on training using the "Health Assessment Index". This was conducted by Dr. Myron Kebus, State Aquaculture Veterinarian. This training was attended by many Veterinarians from around the state and others interested in the project. The training was intended to bring together Veterinarians interested in learning how to conduct health assessments for private fish growers in the state. The assessment was performed on the Atlantic Salmon, results from the assessment have been included with the progress reports.

What media outreach did you conduct through this project? Please identify specific papers or stations

Wisconsin State Journal, interview

Wisconsin Capital Times, interview

Local Westfield newspapers, informational

4.) Describe the results of this project.

Did the grant project results meet your original expectations? Why or why not?

Yes, The plan of work was carried out as anticipated. We believe the information we gathered during early feeding of the Atlantic Salmon to be very valuable to the industry. We were quite uncertain if we could successfully hatch and raise the young aelvins through swim up, which is always the most difficult time during a trout hatch. Then continue through year two without mortalities. The only significant disappointment of the project was the first bag of starter feed was spoiled, unknowingly fed to the fish which may have adversely changed the entire outcome of the project.

At the conclusion of the project it was rewarding, after two years of perseverance, a final product. Most questionable was the flavor, the flavor of the salmon tastes like a salmon and not like farm raised trout.

What new agricultural products, technologies or production methods were developed through this project? What conclusions can you make?

We have imported and developed new production methods for raising Atlantic Salmon, a product that can be stocked or processed for food, much like Rainbow Trout.

What did you learn from your grant project? What conclusions can you make?

Behavior of Atlantic Salmon is quite different than that of a Rainbow trout. We believe that Atlantic Salmon can be a viable and innovative species for new and existing trout farmers, grown and distributed much like trout. The decline in wild stocks and pollution in our oceans, could put Wisconsin in a great position for new large aquaculture ventures. Optimum temperature for Atlantic Salmon is much lower than Rainbow Trout, more suitable for Wisconsin's extreme conditions. Because of Wisconsin's abundant fresh water ponds and the interest in sport fishing, fee fishing operations could also benefit greatly from this project.

How will the grant results affect your business?

Because of the accomplishments of this project, our farm will continue to raise and develop Atlantic Salmon as a new and diverse product. We are especially interested in a smoked product, we are currently distributing smoked Rainbow Trout. Although profits may not be realized for a few years, we feel its a worthwhile endeavor to develop new and value added products from Wisconsin grown Atlantic Salmon. The Wisconsin Department of Agriculture predicts nothing but continued growth for aquaculture, as the worlds commercial fisheries continue to decline.

How will this project benefit the Wisconsin family farm?

This project is directed towards Wisconsin trout farmers in particular.

- Current trout operations can benefit by diversifying and developing new and value added products. There is a large demand by consumers for locally grown quality products.
- New jobs and increased profits from new and existing aquaculture facilities, which are usually located in rural areas, will stimulate economic growth.
- Many agricultural farms in Wisconsin have the resources to supplement farm income by start-up of small scale systems.
- Fresh water fee fishing operations in Wisconsin would benefit by offering an Atlantic Salmon as a prized sport fish.
- Research and Development are needed for investors to commit to fund new and existing ventures.

What impact will this grant project have on the future of Wisconsin agriculture?

All of the above achievements will stimulate improvement in Wisconsin's competitive position in the agricultural industry.

5.) How will the Wisconsin agriculture industry be able to use the information from this project?

The agriculture industry as a whole needs continuous research, development and technology if it is to meet the future needs of the consumers. Anyone contacting the Agriculture Department will have accesses to this grant information. Our farm will promote raising Atlantic Salmon by referrals from the Agriculture Department, Natural Resources or through our web site. This allows anyone to easily contact us about further information on the development of this species.